

IN THE CLAIMS:

Please CANCEL claims 37-49 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claims 61, 67 and 71, and ADD new claims 72-80, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1-60. (Cancelled)

61. (Currently Amended) A position detection apparatus for detecting a position of a mark on an object, said apparatus comprising:

a camera which captures an image of the mark;

an extraction section which extracts an edge position of the mark based on the image of the mark;

a determination section which determines a position of the mark by comparing the edge position with a template; and

a control section which changes at least one of a parameter used by ~~at least one of~~ said extraction section and a parameter used by said determination section, based on a result of the comparing by said determination section.

62. (Previously Presented) An apparatus according to claim 61, wherein the parameter changed by said control section is stored in a memory and used as a base for processing to be executed later.

63. (Previously Presented) An apparatus according to claim 61, wherein said determination section performs the comparing by evaluating a degree of matching between the edge position and the template.

64. (Previously Presented) An apparatus according to claim 63, wherein said determination section determines the position of the mark as a center position of the template based on the degree of matching.

65. (Previously Presented) An apparatus according to claim 61, wherein said determination section performs the comparing using a correlation method.

66. (Previously Presented) An apparatus according to claim 61, wherein said extraction section extracts the edge position by differentiating a signal of the image.

67. (Currently Amended) An apparatus according to claim 61, wherein said extraction section differentiates the signal along each of at least two directions.

68. (Previously Presented) An apparatus according to claim 61, wherein the template includes a plurality of positions of interest.

69. (Previously Presented) An apparatus according to claim 61, wherein a parameter used for at least one of a noise removal processing for the image and a correction of the edge position is changed based on a result of the comparing by said determination section.

70. (Previously Presented) An apparatus according to claim 61, wherein said camera captures the image under a dark field illumination.

71. (Currently Amended) A position detection method of detecting a position of a mark on an object, said method comprising steps of:

capturing an image of the mark using a camera;
extracting an edge position of the mark based on the image of the mark;
determining a position of the mark by comparing the edge position with a template; and
changing at least one of a parameter used ~~in at least one of~~ said extraction step and a parameter used in said determination step, based on a result of the comparing in said determining step.

72. (New) A method according to claim 71, wherein the parameter changed in said changing step is stored in a memory and used as a base for processes to be executed later.

73. (New) A method according to claim 71, wherein, in said determining step, the comparing is performed by evaluating a degree of matching between the edge position and the template.

74. (New) A method according to claim 73, wherein, in said determining step, the position of the mark is determined as a center position of the template based on the degree of matching.

75. (New) A method according to claim 71, wherein, in said determining step, the comparing is performed using a correlation method.

76. (New) A method according to claim 71, wherein, in said extraction step, the edge position is extracted by differentiating a signal of the image.

77. (New) A method according to claim 76, wherein, in said extraction step, the signal is differentiated along each of at least two directions.

78. (New) A method according to claim 71, wherein the template includes a plurality of positions of interest.

79. (New) A method according to claim 71, wherein a parameter used for at least one of a noise removal processing for the image and a correction of the edge position is changed based on a result of the comparing in said determination step.

80. (New) A method according to claim 71, wherein, in said capturing step, the camera captures the image under a dark field illumination.